In the Claims:

Please cancel claims 1-25 and add new claims 26-46 as follows:

1-25. (Canceled)

26. A method of separating a component from a metal based composite, the method including the steps of increasing the size of a component within the metal based composite by heating the metal based composite, crushing the metal based composite and then separating of the increased sized component from the other components of the composite.

27. The method according to claim 26 wherein the metal based composite is heated to a temperature of between about 1500°C and about 1650°C.

28. The method according to claim 26 wherein the metal based composite is held at a temperature of between 1500°C and 1650°C for a time of between about 0.5 hours and about 10 hours.

29. The method according to claim 26 wherein the component increases in size to between about 15μm and about 100μm.

30. The method according to claim 26 wherein the metal based composite is a metal matrix composite made up of at least two components where one is a metal.

31. The method according to claim 26 wherein the metal is titanium, yttrium or copper.

32. The method according to claim 26 wherein the metal based composite is a combination of a metallic base and a reinforcing non-metallic component.

33. The method according to claim 26 wherein the metal based composite is a combination of a metallic base and a ceramic material.

34. The method according to claim 26 wherein the metal based composite is a metal-ceramic composite where the major component makes up greater than about 50% of the composite.

35. The method according to claim 26 wherein the materials or phases that make up the metal based composite include metallic phases, intermetallic phases, oxides, nitrides, carbides or silicates.

36. The method according to claim 26 wherein the materials or phases that make up the metal based composition include metallic phases, intermetallic phases and oxides that include Ti(Al,O), $Ti_3Al(O)$ and TiAl(O) and Al_2O_3.

37. The method according to claim 26 wherein the component that increases in size in the metal based composite is Al_2O_3.

38. The method according to claim 26 wherein the composite is crushed and/or milled following treatment to form a powder and to decrease the size of a component in comparison to other components.

39. The method according to claim 26 wherein the composite is crushed and/or milled following treatment to form a powder and to decrease the size of a component in comparison to other components and the milling occurs in an inert environment such as under argon or a vacuum.

40. The method according to claim 26 wherein the composite is crushed and/or milled following treatment to form a powder to decrease the sizes of a component in comparison to other components and the powder is mixed with surfactant and water to produce a suspension.

41. The method according to claim 26 wherein separation of the components is achieved by sieving, sedimentation, electrophoresis, electrostatic methods, chemical leaching, or the like.

42. The method according to claim 26 wherein the process produces a metal rich powder having a volume fraction of the metal component greater than about 70%.

43. The method according to claim 42 wherein the powder is reacted with a reducing agent or a rare earth metal.

44. The method according to claim 42 wherein the oxygen content of the metal phase in the powder is less than about 1.5 atomic %.

45. A titanium rich powder having a titanium content greater than about 70% and an Al_2O_3 content less than 30% and wherein the oxygen content of the titanium phase is less than 1.5 atomic %.

46. The titanium rich powder according to claim 45 wherein the titanium content is greater than about 76% and the Al_2O_3 content is less than 15%.